Sending all the right signals

Summary

This dissertation emphasized the importance of quantifying the objective behavior of teams and aimed to find how team creative problem solving can be explained by objective and fine-grained behaviors in real-life new service development (NSD) processes. This thesis investigated the application of wearable technology for the study of objective human behavioral cues or "social signals" such as vocalics, proxemics, and kinesics to generate insights into the dynamics of NSD teams.

Chapter 2 introduced the potential of social signals as new types of data for social science research collected with wearable technologies. We presented the sociometric badge as a viable tool for detecting and recording a wide range of social signals. However, as most variables collected have insufficient theoretical foundations for constructing hypotheses we propose employing machine learning algorithms "less-traditional approach" (for social sciences) to analyzing data. To alleviate the lack of theoretical framing for hypotheses development, we discuss data-driven theory development as a viable alternative for traditional theory building approaches. The chapter concluded with a step-by-step best practice procedure of conducting a study with wearable devices.

Chapter 3 focused on proximity and information flow as a point of departure for investigating actual face-to-face encounters between actors. In this empirical study we objectively measured communication patterns as factors shaping creative outcomes in new service development (NSD) teams. This chapter presented preliminary evidence linking proxemics and communicative measures of 'honest social signals' as markers of creative success within teams. The multiple regressions with quadratic assignment procedure was compared with multi-class classification revealing the roles of different objective measures gathered using wearable computing devices. The practical implications of this chapter outline the importance of nonverbal behavior in affecting as well as predicting creativity in the ideation phase of the process, proving that creativity is the outcome of complex social interactions. The main implication for service research is that the converging stage of the ideation process the structure of the project meeting itself is highly important.

The premise of Chapter 4 was that some social relationships (i.e., ties) are more important for the creative process than others during the new service development process. We introduce the concept of "creative activation" defined as the convergence between creative ties and social signals. The main contribution of the paper is successfully applying dynamic network alignment in social science (previously solely used in bio-informatics) to examine the real-time interactions (i.e., social signals) generated by two new service development (NSD) teams, and their participating customers during actual company meetings. This formalized comparison of networks rendered (a) network topological evidence of creative activation in teams, and, (b) isolate patterns in social signals (i.e. interaction synchrony) at different points in time that contribute most to this result.